

# CLAIMS

What is claimed is:

1. A pharmaceutical composition comprising a solid dispersion of an HIV protease inhibitor or combination of HIV protease inhibitors and a water soluble carrier.

2. The composition of Claim 1 wherein said water soluble carrier is polyethylene glycol (PEG).

3. The composition of Claim 1 wherein said HIV protease inhibitor is dissolved in an organic solvent.

4. The composition of Claim 3 wherein said organic solvent is ethanol.

5. The composition of Claim 2 wherein said HIV protease inhibitor is selected from the group consisting of:

2S,3S,5S)-5-(N-(N-((N-methyl-N-((2-isopropyl-4-thiazolyl)methyl)amino)carbonyl)L-valinyl)amino-2-(N-((5-

thiazolyl)methoxy-carbonyl)-amino)-amino-1,6-diphenyl-3-hydroxyhexane (ritonavir);

(2S, 3S, 5S)-2-(2,6Dimethylphenoxyacetyl)

amino-3-hydroxy-5-[2S-(1-tetrahydro-pyrimid-2-onyl)-3-methy

5 1 butanoyl] amino-1,6-diphenylhexane (ABT-378);

N-(2(R)-hydroxy-1 (S)-indanyl)-2(R)-phenylmethyl

-4(S)-hydroxy-5-(1-(4-(3-pyridylmethyl)-2(S)-N'-(t-butylcarboxamido)-piperazinyl))-pentaneamide (indinavir);

N-tert-butyl-decahydro-2-[2(R)-hydroxy-4-phenyl-3(S)-[[N-(2-quinolylcarbonyl)-L-asparaginy]amino]butyl]-(4aS,8aS)-iso  
10 quinoline-3(S)-carboxamide (saquinavir);

5(S)-Boc-amino-4(S)-hydroxy-6-phenyl-2(R)-

phenylmethylhexanoyl-(L)-Val-(L)-Phe-morpholin-4-ylamide;

1 -Naphthoxyacetyl-beta-methylthio-Ala-(2S, 3S)-

15 3-amino-2-hydroxy-4-butanoyl 1,3-thiazolidine-4-

t-butylamide;

5-isoquinolinoxyacetyl-beta-methylthio-Ala-(2S,3S)-3-amino-

2-hydroxy-4-butanoyl-1,3-thiazolidine-4-t-butylamide;

[1S-[1R-(R-),2S\*]]-N<sup>1</sup>-[3-[[[(1,1 -

20 dimethylethyl)amino]carbonyl](2-methylpropyl)amino]-2-

hydroxy-1 -(phenylmethyl)propyl]-2-[(2-

quinolinylcarbonyl)amino]-butanediamide;

VX-478; DMP-323; DMP-450; AG1343 (nelfinavir);  
BMS 186,318; SC-55389a; BILA 1096 BS; U-140690, or  
combinations thereof.

5           6.    The composition of Claim 2 wherein said HIV  
protease inhibitor is (2S,3S,5S)-5-(N-(N-((N-methyl-N-((2-  
isopropyl-4-thiazolyl)methyl)amino)carbonyl)L-  
valinyl)amino-2-(N-((5-thiazolyl)methoxy-carbonyl)-amino)-  
amino-1,6-diphenyl-3-hydroxyhexane (ritonavir).

10           7.    The composition of Claim 2 wherein said HIV  
protease inhibitor is (2S,3S,5S)-2-(2,6-  
Dimethylphenoxyacetyl)amino-3-hydroxy-5-[2S-(1-tetrahydro-  
pyrimid-2-onyl)-3-methyl-butanoyl] amino-1,6-diphenylhexane  
15    (ABT-378).

20           8.    The composition of Claim 2 wherein said HIV  
protease inhibitor is a combination of (2S,3S,5S)-5-(N-(N-  
((N-methyl-N-((2-isopropyl-4-  
thiazolyl)methyl)amino)carbonyl)L-valinyl)amino-2-(N-((5-  
thiazolyl)methoxy-carbonyl)-amino)-amino-1,6-diphenyl-3-

hydroxyhexane (ritonavir) and (2S,3S,5S)-2-(2,6-Dimethylphenoxyacetyl)amino-3-hydroxy-5-[2S-(1-tetrahydro-pyrimid-2-onyl)-3-methyl butanoyl] amino-1,6-diphenylhexane (ABT-378).

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9. The composition of Claim 2 wherein said solid dispersion is encapsulated in a hard gelatin capsule.

10. The composition of Claim 2 wherein said solid dispersion is compressed into a tablet.

11. The composition of Claim 1 further comprising an additive or a mixture of additives independently selected from the group consisting of pharmaceutically acceptable surfactants and antioxidants.

12. A method of preparing a composition of Claim 1 which comprises:

- a) dissolving an HIV protease inhibitor into an organic solvent to form a solution;
- b) adding a water soluble carrier to said solution to form a mixture;

- c) optionally flash evaporating said solvent;  
d) optionally drying the resulting residue  
remaining after evaporation;  
e) optionally grinding and sieving the solid  
dispersion to obtain a resultant product.

13. The method of Claim 12 additionally comprising  
encapsulating the solid dispersion in a hard gelatin  
capsule.

14. The method of Claim 12 additionally comprising  
compressing said solid dispersion into a tablet.

15. The method of Claim 12 wherein said HIV protease  
inhibitor is (2S,3S,5S)-5-((N-((N-methyl-N-((2-isopropyl-  
4-thiazolyl)methyl)amino)carbonyl)L-valinyl)amino-2-((5-  
thiazolyl)methoxy-carbonyl)-amino)-amino-1,6-diphenyl-3-  
hydroxyhexane (ritonavir).

16. The method of Claim 12 wherein said HIV protease  
inhibitor is (2S,3S,5S)-2-(2,6-  
Dimethylphenoxyacetyl)amino-3-hydroxy-5-[2S-(1-tetrahydro-

pyrimid-2-onyl)-3-methyl butanoyl] amino-1,6-diphenylhexane  
(ABT-378) .

17. The method of Claim 12 wherein said solvent is  
5 ethanol.

18. The method of Claim 12 wherein said water soluble  
carrier is polyethylene glycol (PEG) .

19. A method of treating an HIV infection comprising  
administering an effective amount of a solid dispersion of  
10 ~~Claim 1~~ to a mammal in need of such treatment.

20. The method of Claim 19 wherein said HIV protease  
15 inhibitor is selected from the group consisting of  
(2S,3S,5S)-5-(N-(N-((N-methyl-N-((2-isopropyl-4-  
thiazolyl)methyl)amino)carbonyl)L-valinyl)amino-2-(N-((5-  
thiazolyl)methoxy-carbonyl)-amino)-amino-1,6-diphenyl-3-  
hydroxyhexane (ritonavir) and (2S,3S,5S)-2-(2,6-  
20 Dimethylphenoxyacetyl)amino-3-hydroxy-5-[2S-(1-tetrahydro-  
pyrimid-2-onyl)-3-methyl butanoyl] amino-1,6-diphenylhexane  
(ABT-378) .

21. The method of Claim 19 wherein said HIV protease inhibitor is a combination of (2S,3S,5S)-5-(N-(N-((N-methyl-N-((2-isopropyl-4-thiazolyl)methyl)amino)carbonyl)L-valinyl)amino-2-(N-((5-thiazolyl)methoxy-carbonyl)-amino)-5 amino-1,6-diphenyl-3-hydroxyhexane (ritonavir) and (2S,3S,5S)-2-(2,6-Dimethylphenoxyacetyl)amino-3-hydroxy-5-[2S-(1-tetrahydropyrimid-2-onyl)-3-methyl butanoyl] amino-1,6-diphenylhexane (ABT-378) .